best results are obtained with this method of treatment. often called segmental resection, and it should be carried out whenever possible. The tumor and the entire thickness of the bladder wall should be resected with a cutting current which aids in the control of hemorrhage and avoids the spread of tumor cells in the operative field. A margin of normal bladder wall 1 cm. or more in width around the periphery of the tumor should be included in the resection. If the growth is comparatively small, or of a low degree of malignancy, or if it is an area unsuitable for resection, it may be excised with a portion of the bladder wall. The base is then thoroughly coagulated with a diathermy electrode and radon seeds planted if further treatment seems necessary.

Electrocoagulation or diathermy is the method of choice in destroying the flat, fairly extensive papillary growth of a low degree of malignancy. Occasionally growths which are apparently so extensive as to be inoperable respond surprisingly to thorough coagulation. On this account coagulation should be carried out, if possible, in patients with tumors that are seemingly inoperable; in a number there will be regression of the tumor.

There is a small group of cases in which the tumor is still confined to the bladder but is so located or so extensive as to preclude any possibility of cure by the usual methods of treatment. Cystectomy has been done in a number of these cases and reports of results have been increasingly more favorable. The mortality is high and the survival rate low, although in a group of recently reported cases satisfactory results have been obtained. Cystectomy demands that the urinary stream be diverted, which is usually carried out as a preliminary procedure. The bladder is then resected at a second operation. In some cases both procedures have been carried out at the same operation.

3. *Irradiation therapy.* High voltage x-ray therapy should be reserved for use in inoperable cases, for palliation and the arrest of hemorrhage. It is best suited to cases with a high degree of malignancy. as radiosensitivity tends to increase in proportion to malignancy. In occasional isolated instances x-ray therapy produces startling regression of the tumor. In those cases where, for various reasons. other more dependable methods cannot be employed. it may be of benefit.

There is little evidence to show that malignant tumors of the bladder can be cured by high voltage irradiation. Most urologists believe that it should be used only for patients who have advanced tumors, or for old and debilitated patients. In any case in which operation is suitable, it should be done.

4. *Implantation of radon.* Radon seeds have a definite place in the treatment of tumors of a high grade of malignancy. These seeds may be used in association with irradiation but they are most frequently employed following electrocoagulation. In tumors where seeds have been planted preoperatively through the cystoscope the proliferative power of the tumor cells, as observed postoperatively, is markedly reduced and in some cases completely destroyed. In other areas, nests of apparently intact malignant cells may be found. What benefit might be obtained by preoperative treatment is nullified by the increased technical difficulty of later surgical removal. The edema, swelling and friability of the irradiated tissue make it difficult and at times almost impossible to resect and close the bladder wall. On this account preoperative radium treatment is now rarely used.

SUMMARY

Tumors of the bladder, when treated during the early period of symptoms, respond readily to treatment and results can be obtained which are comparable to those obtained following treatment of tumors occurring in other parts of the body.

Intermittent hematuria is the most frequent and outstanding symptom of bladder tumor. Its prompt and complete, temporary disappearance, together with the lack of pain and discomfort, gives the patient and often the physician a false sense of reassurance, inviting procrastination in examination and treatment. Unfortunately, bleeding may not recur until a regrettably long period of time has elapsed.

Hematuria is always serious; it should never be ignored without definitely determining its origin. This necessitates a cystoscopic examination. If this is done as a routine measure, it will be possible to reduce substantially the distressingly high mortality from tumor of the bladder.

Given an early case, the chance of cure for the patient with a bladder tumor is dependent in large part upon the skill, knowledge, and experience of the cystoscopist.

"Cysts and Tumors of the Jaws," by Eugene W. Demaree, M.D., Chapter XIIA of the California Cancer Commission Studies will appear in this section of the January number of CALIFORNIA MEDICINE.

Correction

The name of one of the authors of Chapter XXII of the California Cancer Commission Studies, which appeared in the September issue of CALIFORNIA MEDICINE, was misspelled. The chapter, titled Carcinoma of the Liver, Gallbladder, Extrahepatic Ducts, and Pancreas, was written by William F. Roe, M.D., of Van Nuys, and E. Eric Larson, M.D., of Los Angeles. Dr. Roe's name was misspelled "Rowe."